

WHAT IS CLAIMED IS:

1 1. An adapter comprises:
2 a member including appropriate mating fittings to allow the member to connect to a
3 interconnect that interfaces a battery or a source of fuel to a fuel cell system for powering an
4 electronic device.

1 2. The adapter of claim 1 wherein the appropriate mating fittings on the member
2 include a pair of spaced battery terminals and an aperture to receive an ingress port on a fuel
3 cell interconnect.

1 3. The adapter of claim 1 wherein the member includes electronics to convert
2 power incident at an input of the adapter to an output power level at the pair of spaced battery
3 terminals.

1 4. The adapter of claim 1 wherein the member includes a wire coupled to an
2 electronic plug.

1 5. An adapter comprises:
2 a first member including appropriate mating fittings to allow the member to connect
3 to a interconnect that interfaces a source of fuel to a fuel cell system;
4 a second member having electronics to convert power incident at an input of the
5 adapter to an output power level at the pair of spaced battery terminals of the member; and
6 a first pair of wires coupled between an input of the first member and output of the
7 second member; and
8 a second pair of wires coupled from an input of the second member to an electronic
9 plug.

1 6. The adapter of claim 5 wherein the member includes a wire coupled to an
2 electronic plug.

1 7. The adapter of claim 5 wherein the appropriate mating fittings on the member
2 include a pair of spaced battery terminals and an aperture to receive an ingress port on a fuel
3 cell interconnect.

1 8. The adapter of claim 5 wherein the member includes electronics to convert
2 power incident at an input of the adapter to an output power level at the pair of spaced battery
3 terminal.

1 9. The adapter of claim 6 wherein the member includes electronics to convert
2 power incident at an input of the adapter to an output power level at the pair of spaced battery
3 terminal.

1 10. A hybrid power supply comprises:
2 an interface between a fuel cell system and a fuel cartridge or battery; and
3 a switching type DC/DC boost type converter coupled to the interface and which
4 receives energy from a fuel cell or from an external battery connected to the interface, and
5 which is arranged to deliver the energy to a rechargeable cell, the DC/DC converter
6 configured to provide substantially constant current drain from the fuel cell.

1 11. The hybrid power supply of claim 1, further comprising:
2 a circuit disposed to sense when a voltage is present across terminals of the interface
3 to cause power to be supplied to rechargeable battery from an external battery when the
4 external battery is present or from a fuel cell when the battery is not present.

1 12. The hybrid power supply of claim 11 wherein the circuit includes a diode
2 coupled between an output terminal of the fuel cell and a terminal of the interconnect that
3 connects an external battery to the hybrid supply.

1 13. The hybrid power supply of claim 11 the circuit includes:
2 a first transistor biased through a resistor to conduct power from the fuel cell to a
3 load; and

a second transistor arranged where if an external battery is inserted, the gate voltage of the first transistor turns the transistor off, preventing connection of the fuel cell to the battery, and the second transistor is biased through a second resistor to conduct power from the battery to the load.

14. The hybrid power supply of claim 11, further comprising:
a circuit including a fuel cell current control that senses fuel cell current, and controls in part operation of the converter to provide constant current discharge on the fuel cell side of the hybrid power supply.

15. A hybrid power supply comprises:
a fuel cell;
an interface between the fuel cell and a fuel cartridge or external battery; and
a switching type DC/DC boost type converter that receives energy from the fuel cell or an external battery connected to the interface and is arranged to deliver the energy to a rechargeable cell;
a fuel cell current sensor/comparator, included in a feedback control loop disposed about the DC/DC converter, which controls in part operation of the converter to provide constant current discharge on the fuel battery side of the hybrid power supply.

16. The hybrid power supply of claim 15, further comprising:
a fuel cell current sensor/comparator draws a constant current that is about equal to an optimal level of current to draw from the fuel cell to maximize fuel efficiency.

17. The hybrid power supply of claim 15 wherein the hybrid power supply is configured so that the fuel cell provides just above expected average power consumption for a particular application, and the rechargeable battery provide peak power requirements.

18. The hybrid power supply of claim 15 wherein the rechargeable cell is Li-Ion or Li-Polymer rechargeable cell.

1 19 The hybrid power supply of claim 15 wherein the circuit delivers an output
2 voltage that corresponds to about 90% charge of the rechargeable cell.

1 20. A hybrid power supply comprises:
2 a fuel cell;
3 an interconnect that can receive a fuel cartridge, a battery, or a power adapter;
4 a rechargeable cell;
5 a DC/DC boost type converter that receives energy from the fuel cell, battery or
6 adapter, and is arranged to deliver the energy to the rechargeable cell.

1 21 The hybrid power supply of claim 21 wherein a diode is coupled between the
2 fuel cell and an external battery terminal of the interconnect that receives a battery or the
3 power adapter, such that when the fuel cell supplies the power, the diode is forward biased,
4 and the external battery terminals are at open circuit and if an external battery or power
5 adapter is connected to the contacts the diode is reverse biased, and the battery supplies
6 power to the load.

1 22. The hybrid power supply of claim 21 wherein the diode prevents charging of
2 the fuel cell from the battery or power adapter.

1 23. The hybrid power supply of claim 21 wherein the dc-dc converter is coupled
2 across the external battery terminals.

1 24. The hybrid power supply of claim 21 wherein the dc-dc converter is a step-up
2 (boost) DC/DC converter to provide optimal operation for the fuel cell.

1 25. The hybrid power supply of claim 24 wherein the circuit includes:
2 a first transistor biased through a resistor to conduct power from the fuel cell to a
3 load; and
4 a second transistor arranged where if an external battery is inserted, the gate voltage
5 of the first transistor turns the transistor off, preventing connection of the fuel cell to the

- 6 battery, and the second transistor is biased through a second resistor to conduct power from
- 7 the battery to the load.